

CHICAGO POWER ELECTRIC® SYSTEMS

POWER INVERTER 1,000 WATT / 2,000 WATT PEAK

Model 94009

ASSEMBLY AND OPERATING INSTRUCTIONS



3491 Mission Oaks Blvd., Camarillo, CA 93011
Visit our Web site at <http://www.harborfreight.com>

**TO PREVENT SERIOUS INJURY,
READ AND UNDERSTAND ALL WARNINGS
AND INSTRUCTIONS BEFORE USE.**

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For technical questions and replacement parts, please call 1-800-444-3353

Specifications

ITEM	DESCRIPTION
Continuous Power	1,000 Watts
Peak Power	2,000 Watts
Input Voltage	12 Volts Nominal DC (11-15 Volts possible)
Output Voltage	120 Volts AC at 60 Hz
AC Receptacles	(2) Two 3-Prong, Grounded, Polarized Outlets
Fuse	30 Amps, 4 Qty. (internal, for replacement only by a qualified technician)
Dimensions	13 ¹ / ₂ " L x 5" W x 2 ³ / ₄ " H
Weight	5.6 lbs
Switch	Rocker type, On / Off, Illuminates to indicate power on
Thermal Overload	155° F
Recommended Input Cord	Battery cable (not included; #2 AWG or larger cables recommended)
Features	- Modified sine wave with approximately 90% efficiency - Low voltage alarm ¹ and shutdown ² ¹ at 10.5 V; ² at about 10 V

Save This Manual

You will need the manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep the manual and invoice in a safe and dry place for future reference.

Safety Warnings and Precautions

WARNING: When using this device, basic safety precautions should always be followed to reduce the risk of personal injury and damage to equipment.

Read all instructions before using this device!

1. **Do not plug in a battery charger** if the charger has a warning that dangerous voltages are present at the battery terminals.
2. **Keep work area clean.** Cluttered areas invite injuries.
3. **Keep inverter away from any direct heat source or combustible material.**

4. **Observe work area conditions.** Do not use devices in damp or wet locations. Don't expose to rain. Keep work area well lighted. Do not use electrically powered devices in the presence of flammable gases or liquids.
5. **Keep children away.** Children must never be allowed in the work area. Do not let them handle machines, devices, or extension cords.
6. **Store idle equipment.** When not in use, devices must be stored in a dry location to inhibit rust. Always lock up devices and keep out of reach of children.
7. **Use the right inverter for the job.** Do not attempt to force a small inverter or attachment to do the work of a larger industrial inverter. There are certain applications for which this inverter was designed. It will do the job better and more safely at the rate for which it was intended. Do not modify this inverter and do not use this inverter for a purpose for which it was not intended.
8. **Dress properly.** Do not wear loose clothing or jewelry as they can be caught in moving parts. Protective, electrically nonconductive clothes and nonskid footwear are recommended when working. Wear restrictive hair covering to contain long hair.
9. **Use eye protection.** Always wear ANSI approved impact safety goggles when using inverters.
10. **Do not overreach.** Keep proper footing and balance at all times. Do not reach over or across running machines.
11. **Maintain inverters with care.** Keep inverters clean for better and safer performance. Follow instructions for changing accessories. Inspect inverter cords periodically and, if damaged, have them repaired by an authorized technician.
12. **Disconnect power.** Unplug inverter when not in use.
13. **Avoid unintentional starting.** Be sure the switch is in the Off position when not in use and before plugging in any appliance.
14. **Stay alert.** Watch what you are doing, use common sense. Do not operate any inverter when you are tired.
15. **Check for damaged parts.** Before using any inverter, any part that appears damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment and binding of moving parts; any broken parts or mounting fixtures; and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician. Do not use the inverter if any switch does not turn On and Off properly.
16. **Servicing.** This device should be serviced only by a qualified technician. This item does not have any user-replaceable parts.

17.



Guard against electric shock.

Do not open the metal case; risk of electric shock.

Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerator enclosures during installation.

Connect all wires securely.

Store tools and metal objects away from the inverter.

18. **Do not operate inverter if under the influence of alcohol or drugs.** Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate the inverter.
19. **People with pacemakers should consult their physician(s) before using this product.** Electromagnetic fields in close proximity to a heart pacemaker could cause interference to or failure of the pacemaker.
20. **Keep the Inverter well-ventilated.** Do not place any objects on top of or next to the Inverter or allow anything to cover the cooling fans; doing so can cause the Inverter to overheat, causing a potential fire hazard and/or damage to the Inverter. Leave adequate ventilation space underneath the Inverter as well; thick carpets or rugs can obstruct air flow, causing the Inverter to overheat.
21. **Read and adhere to all warnings and safety precautions in the owner's manual for the device that this inverter is used to power.**
22. **A vehicle's engine must never be used in any sealed structure. Carbon monoxide is produced during operation and is DEADLY in a closed environment.** Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness, or nausea. If you have these signs, get fresh air immediately.

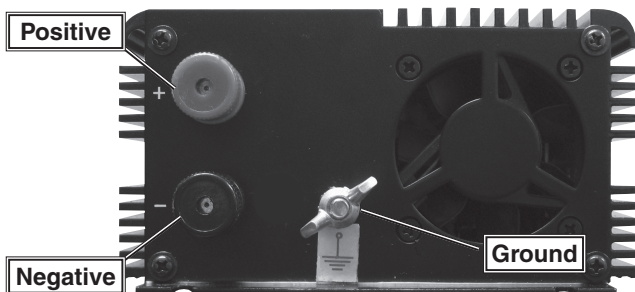
Note: Performance of this unit may vary depending on the available battery power or appliance wattage.

Warning: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Unpacking

When unpacking, check to make sure that the Inverter is in good condition. If any parts are missing or broken, please call Harbor Freight Tools at the number on the cover of this manual as soon as possible.

BACK



WARNING!

Risk of Fire!

The positive battery terminal connection must be the LAST connection and must be done with the inverter's switch off.

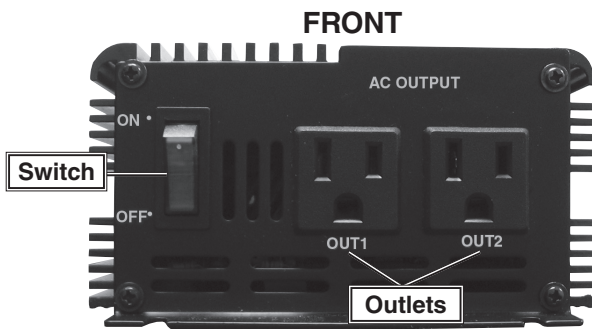
Connection

For the power inverter to work properly, your power source must provide 12 volts DC, and the power source must provide enough current (i.e., 46 amps to operate the load of 560 Watts or under).

Caution: This inverter must only be connected to batteries with a nominal output voltage of 12 volts. Lower voltage will not operate the inverter properly, and more voltage could damage the inverter or the device being powered. If more than one 12 volt battery is to be used, the batteries must be connected in a parallel circuit; batteries connected in a series circuit will produce too much voltage.

1. Place the Power Inverter on a flat surface. Make sure it has adequate ventilation and is not in direct sunlight. Fasten the inverter securely to the surface, using screws or some other means. If holes are to be drilled, follow safe, proper installation techniques.
2. Connect the Battery Cable (not included; #2 AWG or larger cables recommended) lugs to the (Positive) red and (Negative) black terminals on the back of the Inverter, see *BACK* above. Connect the Ground Cable (not included; #4 AWG or larger cable recommended) lug to the Ground terminal, see *BACK* above. Securely tighten.
3. The Power Inverter can be used either while the engine is running or off. Connect the Battery Cables (not included) to the Negative (black) and Positive (red) terminals of the battery.
4. Connect the Ground Cable to the appropriate location below:
 - a. **If this unit is mounted within a vehicle with a grounded metal chassis,** attach the Ground Cable to a nearby location on the chassis.
 - b. **If this unit is mounted in a boat or vehicle with an ungrounded chassis,** attach the Ground Cable to the vehicle's grounding system.
 - c. **ONLY if this unit is being used outside a vehicle,** attach the Ground Cable to the Negative Terminal of the Inverter.

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Operation

Warning: NEVER operate this inverter unless it is properly grounded.

1. Plug the 115 VAC device(s) you wish to power into the 3-prong AC Receptacles. See *FRONT* above. The appliance(s) must not use more than 1,000 (total) watts during continuous operation, otherwise it may overload the Inverter.

Caution: Some rechargeable appliances may damage the Power Inverter or the appliance. When first using a rechargeable device, check the inverter's temperature for the first 10 minutes. If it becomes abnormally hot, do not use this device with the Inverter.

2. Flip the Power Switch to the ON position to turn on. Do not use the appliance until the switch illuminates.
3. Turn on appliance. If an alarm sound is heard, turn off the appliance.

Caution: It is recommended that the vehicle be started every hour to recharge the battery. Doing this will help prevent any unexpected shutdown of the equipment. This will also help ensure that there will be enough battery power to start the vehicle. Due to the risk of carbon monoxide inhalation (see *Warning # 22* on page 4), do not run the vehicle's engine within an enclosed area.

4. After use, disconnect the appliances and flip the Switch to the OFF position.

Maintenance

1. Keep this unit clean and dry. Unplug the unit before cleaning. Clean only the outside of this unit with a soft, dry cloth; never clean this unit with water or harsh cleaners.
2. This device does not contain any user replaceable parts. If it needs service, take it to a qualified technician.

Due to the sensitive wiring and electrical circuits within this device, and the possibility of injury, **the fuses inside this unit are to be replaced only by a qualified technician.** Also, this unit must have all energy storing electronics discharged BEFORE opening; test for voltage to verify that the unit is safe BEFORE opening.

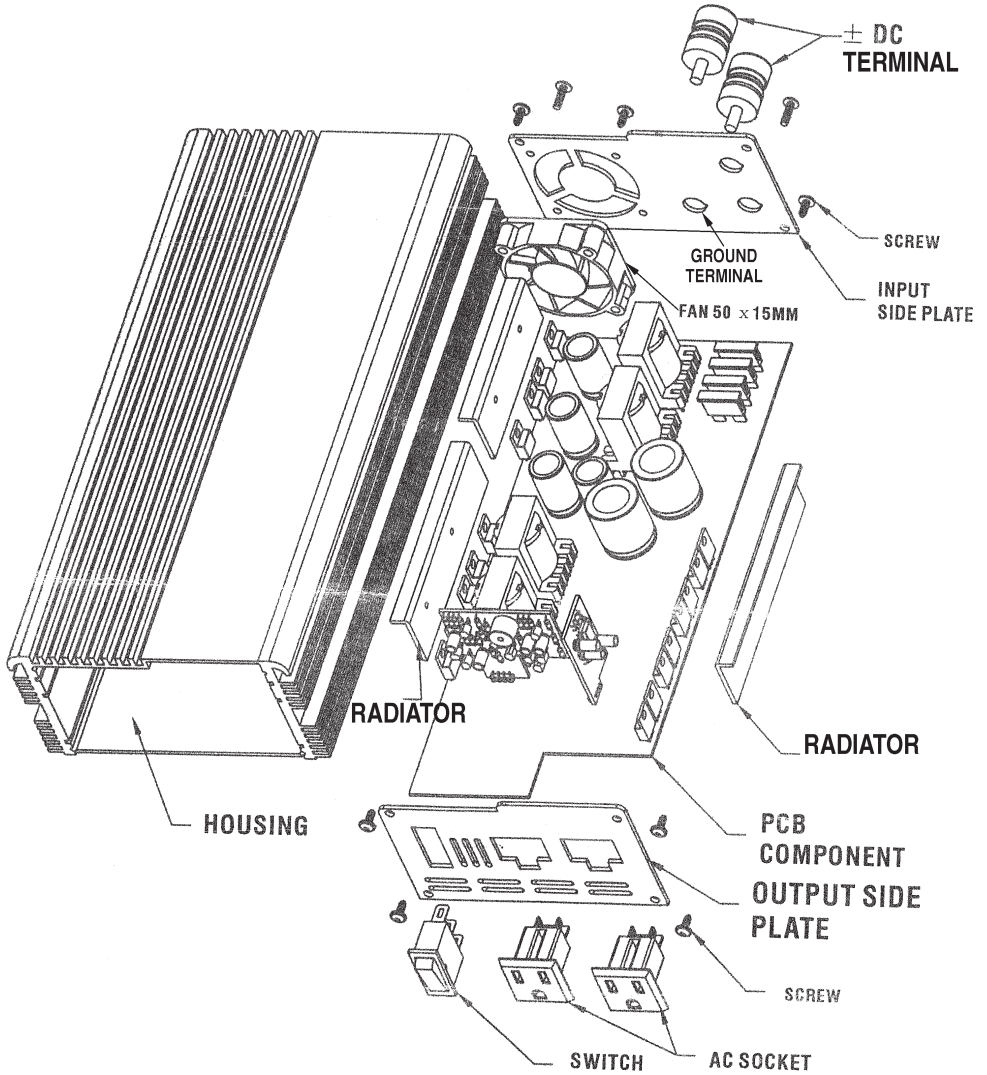
Troubleshooting Tips

1. If the low battery alarm sounds, this means that the input voltage is below the necessary 10.5 V. The battery needs recharging. You should stop using the appliance and then recharge the battery. If this is not done, the Inverter will shut off automatically at around 10 V.
2. If you are unsure if the inverter will have the proper amount of current to run the device, use this rough guideline: Take the power consumption of the load in watts and divide it by 12 (input voltage). The result will be the approximate number of amps needed to power your device.
Example: Load is rated at 312 watts. $312 \text{ watts} / 12 \text{ V} = 26 \text{ amps}$ needed. You could use this device with the inverter.
3. If your television will not start, it is important to keep in mind that some appliances (including many televisions) may require two to six times their wattage to start up.
4. If your audio system buzzes while using this inverter, it is because some sound systems can not filter out the modified sine wave produced by the inverter. Use a sound system that incorporates a higher quality power supply.
5. This inverter is made to minimize the interference with TV signals. However, especially with weak TV signals, some interference may still be visible. To correct this, place the inverter as far away as possible from the television antenna and its cables. Next, adjust the orientation of the inverter to the antenna cables and TV power cord to minimize the interference. Also, use a shielded antenna cable.
6. If the low battery alarm is on all the time, try these corrective measures: Recharge battery if in poor condition. Next, check the battery connection. You may need to clean the connectors.
7. If you are getting a low output voltage, try reducing the load to minimize watts. You may have overloaded the inverter. Reduce your load to 950 watts. Also, keep input voltage above 10.5 volts to maintain a constant flow of power.
8. If you are not getting any power output, turn the power switch Off and On again, until the green power light comes on. Your devices may draw too much power to operate them. The inverter may be in thermal shutdown. Let it cool down and make sure there is adequate ventilation around the unit.

PLEASE READ THE FOLLOWING CAREFULLY

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Assembly Diagram



NOTE: Parts are listed and shown for illustration purposes only and are not available individually as replacement parts.